

# Technology Transfer Programs and Mechanisms

## Section I

### Introduction

There are various Technology Transfer (T<sup>2</sup>) mechanisms and programs to facilitate the formal transfer of technology as shown in *Figure I-1*. A brief description of the features and characteristics of each mechanism and program follows:

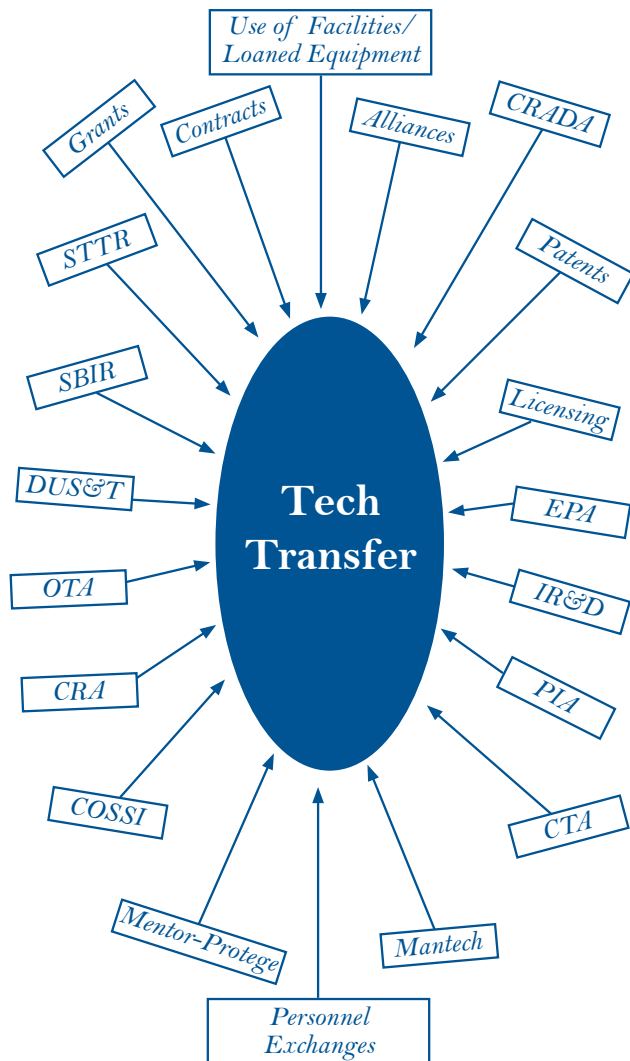


Figure I-1

Technology Transfer Programs		
Programs	Description	Features/Characteristics
Commerical Operations & Support Savings Initiative (COSSI)  <i>(Refer to 10 USC Sec. 2511)</i>	The purpose of the COSSI program is to reduce DoD operations and support (O&S) costs by developing, testing, and inserting commercial technologies into fielded military systems.	<ul style="list-style-type: none"> <li>- COSSI seeks proposals submitted by firms or teams that include at least one for-profit firm. Proposals must include the written support of a "Military Customer."</li> <li>- COSSI is a two-stage process:               <ol style="list-style-type: none"> <li>1. In Stage I, each selected proposal firm will share the costs of developing and testing the kit. (There is no minimum cost share required)</li> <li>2. If Stage I is successful, the Military Customer may then use procurement funds to contract for reasonable production quantities of the kit in Stage II.</li> </ol> </li> </ul>
Dual Use Science & Technology (DUS&T) Program  <i>Refer to Omnibus Consolidated Appropriations Act of FY97</i>	The Dual Use Science & Technology (DUS&T) Program is to transfer technology that has both military utility and sufficient potential to support a viable commercial industrial base.  <i>Objectives of the DUS&amp;T Program are to:</i> <ul style="list-style-type: none"> <li>- Implement dual use technologies as "Part of Standard Way of Doing Business"</li> <li>- Jointly fund dual use technology developments with industry</li> <li>- Goals for applied research budget (6.2 funds) are: 5%, 7%, 10%, and 15% for 1998, 1999, 2000, 2001, and thereafter.</li> </ul>	<ul style="list-style-type: none"> <li>- Give the DoD greater access to affordable, advanced technology by leveraging commercial know-how, investments, and markets for military use.</li> <li>- Industry teaming encouraged to provide complimentary talents of technology, commercialization, and productivity.</li> <li>- DoD will benefit from the technological opportunities offered by the commercial sector.</li> <li>- Projects must result in the development of technology - prototypes are strongly encouraged.</li> <li>- Project funds can be used to fund 25% of a project, with 25% provided by the DUS&amp;T Program* and industry providing a 50% cost share. (*Ends with FY 2004)</li> <li>- Must be competitively selected and use "Cooperative Agreement" or "Other Transactions" authority awards (non- FAR).</li> </ul>
Independent Research and Development (IR&D)  <i>Refer to Department of Defense Directive 3204.1</i>	IR&D is a DoD sponsored program that encourages contractors to pursue independent research and development projects that are of potential interest to DoD, thus encouraging maintenance of a strong national technology base.	<ul style="list-style-type: none"> <li>- Contractors are allowed to recover some costs incurred in doing independent research and development in a high technology environment.</li> <li>- Contractors able to diversify into non-defense markets.</li> <li>- Industrial competitiveness of the United States is enhanced.</li> <li>- Enables superior performance of future U.S. weapon systems and components.</li> <li>- Reduces acquisition costs and life-cycle costs of military systems.</li> </ul>

Technology Transfer Programs		
Programs	Description	Features/Characteristics
		<ul style="list-style-type: none"> <li>- Strengthens the defense industrial base and the technology base of the United States.</li> <li>- Promotes the development of technologies identified as critical under section 2522 of Title 10, the United States Code.</li> <li>- Increases the development and promotion of efficient and effective applications of dual-use technologies.</li> <li>- Provides efficient and effective technologies for achieving such environmental benefits as improved environmental data gathering, environmental cleanup and restoration, pollution reduction in manufacturing, environmental conservation and environmentally safe management of facilities.</li> <li>- Funds can be used to support the business partners CRADA participation.</li> </ul>
<b>Manufacturing Technology (ManTech) Program</b>  <i>Refer to 10 U.S.C. Section 2525 (e) The Plan, available on the Internet at <a href="http://mantech.iitr.org/pubs/pubs.html">http://mantech.iitr.org/pubs/pubs.html</a></i>	DoD's Manufacturing Technology (ManTech) Program develops new and improved manufacturing processes to facilitate more affordable production of DoD weapon systems and components.	<p>The Program is structured around two major thrust areas:</p> <ul style="list-style-type: none"> <li>- Processing and Fabrication activities develop affordable processes for metals, composites, and electronics by improving factory floor and repair and maintenance facility (depots, logistics centers, and shipyards) processes.</li> <li>- Advanced Manufacturing Enterprise activities accelerate implementation of world-class industrial practices, advanced design, and information systems that support weapons system development, production and sustainment.</li> </ul>
<b>Mentor-Protégé Program (MPP)</b>  <i>Refer to PL 101-510, National Authorization Act for 1991, Section 831, as amended</i>	The DoD/DoE Mentor-Protégé Program provides incentives to major DoD/DoE contractors to assist small disadvantaged businesses (SDBs) enhance their capabilities to satisfy DoD/DoE contract and subcontract requirements; to increase participation of SDBs as subcontractors under	<ul style="list-style-type: none"> <li>- Used as an outreach tool between SDBs and major contractors.</li> <li>- SDB proteges receive technical assistance at no cost from their prime contractor mentor.</li> <li>- Long term relationships fostered between DoD/DoE contractors and SDBs.</li> <li>- MPP supports the nation's defense effort and contributes to a stronger economic base.</li> <li>- Technical assistance costs incurred by mentors for protégé development may be credited toward their established</li> </ul>

Technology Transfer Programs		
Programs	Description	Features/Characteristics
	DoD/DoE, other Federal and commercial contracts, and to establish long term business relationships between SDBs and major contractors.	<ul style="list-style-type: none"> <li>- subcontracting goals and/or included in their indirect cost pool.</li> <li>- Expands the business base of protégé firm by enhancing capabilities to be more competitive and successful in obtaining future government contracts.</li> </ul>
<b>Personnel Exchanges Program</b>  <i>Refer to AFI 61-301</i>	Arrangements, which allow Lab staff to work in government, education or industry facilities, and people from government, education or industry organizations to work at the Lab in order to enhance technical capabilities and support research in specific areas.	<ul style="list-style-type: none"> <li>- Generally no proprietary data is exchanged.</li> <li>- Cost is paid by the organization sending the personnel.</li> <li>- Programs are usually short-term (1-year).</li> <li>- Technical capabilities of government, education and industry facilities enhanced.</li> <li>- Partnership with various entities provides for innovative technology and better services to the government, industry and commercial marketplace.</li> <li>- Access to additional resources and levels of expertise provide value.</li> <li>- Industrial competitiveness of the United States is enhanced.</li> <li>- Leveraging of resources and personnel will improve cost and performance.</li> </ul>
<b>Small Business Innovation Research (SBIR)</b>  <i>Refer to 15 U.S.C. 638, Small Business Act</i>	The SBIR program is designed to stimulate technological innovation among small businesses while providing new, cost-effective, technical and scientific solutions to challenging problems. Contracts are awarded based on scientific and technical merit for meeting Air Force R&D needs along with the proposal's potential for commercialization.	<p><b>Three-phase program</b></p> <ul style="list-style-type: none"> <li>- **Phase I Establish concept feasibility - \$100K/9 Months</li> <li>- ** Phase II Proof of Concept - primarily R&amp;D and concept for commercial applications - \$750K/24 Months</li> <li>- ** Phase III Pursue private and public sector applications of R&amp;D product or process. Source of follow-on funding must come from private capital and non-SBIR funds.</li> <li>- Throughout the program, small businesses are encouraged to market SBIR sponsored technology to private sector enabling advanced technology to move into the commercial market.</li> <li>- Phase I and Phase II R&amp;D work must be performed by the small business concern in the United States.</li> <li>- Joint ventures and limited partnerships are permitted as long as the entity created qualifies as a small business according to the Small Business Act 15 U.S.C. 631 and as defined</li> </ul>

Technology Transfer Programs			Technology Transfer Mechanisms		
Programs	Description	Features/Characteristics	Mechanisms	Description	Features/Characteristics
		by the SBIR Program. - Federal agencies needs strengthened by the role of small business in the SBIR Program. - Five-year confidentiality limit on data. - Contractor may obtain title to inventions.			- All contractors regardless of size may obtain title to inventions, but Government normally retains Government Purpose License Rights (GPLR) and "march-in" rights. - Allocation of patent rights determined by the type of contractor performing the work: large businesses may frequently obtain a waiver on inventions where waiver criteria are satisfied; and nonprofit organizations/small businesses may obtain title to inventions under the Patent and Trademark Amendments Act of 1980 (Public Law 96-517). - Competition laws and requirements apply. - Governed by FAR and procurement statutes (CICA, Procurement Integrity, etc.).
<b>Small Business Technology Transfer Program (STTR)</b>  <i>Refer to 15 U.S.C. 638</i>	Similar to the SBIR program. Awards are made to small business firms for research and development conducted jointly by small businesses and research institutions. Contracts are awarded to offerors who propose innovative concepts to solve defense-related scientific and engineering problems; especially those concepts that have a high potential for commercialization in the private sector.	- Three-year pilot program starting in FY94. - Three phases (similar to SBIR program). - ** Phase I \$100K/6-12 Months - ** Phase II \$500K/up to 24 Months - ** Phase III Small Business and research institution expected to use private capital and non-STTR funds to pursue commercial applications. - Not less than 40% of the work to be performed by small business. - Not less than 30% of the work must be performed by a research institution (university, non-profit research institution, or FFRDC).			
Technology Transfer Mechanisms					
Mechanisms	Description	Features/Characteristics			
			<b>Cooperative Research Agreement (CRA)</b>  <i>Refer to 15 U.S.C. 3706 and 31 U.S.C. 6305</i>	An agreement between the government and a recipient whereby money or property is transferred to the recipient to support or stimulate research.	- Similar to a CRADA, except the Government can provide direct funding to the participant. - Typically the effort requires a cost-sharing arrangement, with the Government funding up to 50 percent of the total collaborative effort. - Use is guided by the Federal Acquisition Regulations. - Flexibility enables non-traditional participation. - Firms can "charge-off" their share to IR&D.
			<b>Cooperative Research and Development Agreement (CRADA)</b>  <i>Refer to 31 U.S.C. 6305 and 10 U.S.C. 2371</i>	A CRADA is a written agreement between one or more federal laboratories and one or more non-federal parties under which the Government, through its laboratories, provides personnel, facilities, equipment or other resources with or without reimbursement (but not funds to non-federal parties). The non-federal parties provide funds, people, services, facilities, equipment, or other resources to conduct specific research or development efforts that are consistent with the agency's mission.	- Although the collaboration involves the expenditure of federal funds and the use of federal personnel, services, equipment, intellectual property or other resources, no funds may flow to the CRADA partner. - CRADA is not considered a procurement contract, grant, or cooperative agreement, therefore, not subject to 31 U.S.C. 6303-6305 terms. - CRADA is not considered an "assistance" or procurement tool. - The project manager and legal counsel draft an agreement, NOT a "contracting" instrument. - Rights to inventions and other intellectual property are negotiated as part of the agreement.
Technology Transfer Mechanisms					
Mechanisms	Description	Features/Characteristics			
Alliances	Alliances is an informal T <sup>2</sup> tool which allows the federal laboratory to enter into a Memorandum of Understanding (MOU) or Memorandum of Agreement (MOA) with a group of companies, laboratories, and/or educational institutions to pursue common technology interests.	- Typically a MOU or MOA with authorization provided by another appropriate mechanism. - A non-binding document which outlines the principles between partners. - Accomplishment of specific technology transfer efforts result through more specific transfer mechanisms. - Leveraging of resources and personnel will improve cost and performance. - Technical capabilities of partners and facilities are enhanced.			
<b>Contracts (General)</b>  <i>Refer to 31 U.S.C. 6303</i>	The Government and a contractor enter into a contract (an acquisition instrument) in which the contractor is required to provide supplies and services to the Government. Types of contracts include cost, cost-sharing, and fixed-price.	- Government's purpose is to acquire goods, services, or research for the primary benefit of the Government. - Can be used to fund R&D that may eventually be transferred to the private sector.			

Technology Transfer Mechanisms		
Mechanisms	Description	Features/Characteristics
		<ul style="list-style-type: none"> <li>- Certain generated trade secret information (of the non-federal party or laboratory) that qualifies as protected information may be withheld from public dissemination for a period of time up to 5 years from release under the FOIA, 5 U.S.C. 552 et. seq.</li> <li>- Special consideration is given to small businesses and consortia involving small businesses.</li> <li>- Preference is given to businesses that are located in the United States and agree to manufacture substantially in the United States products that embody inventions developed under the CRADA or are produced using inventions developed under the CRADA.</li> <li>- The U.S. government always retains a nonexclusive or nontransferable, irrevocable, and paid-up license to practice any invention developed under a CRADA for governmental purposes.</li> </ul>
Commercial Test Agreement (CTA)  <i>Refer to 10 USC Sec. 2539b</i>	Availability of samples, drawings, information, equipment, materials, and certain services as it relates to the interest of national defense.	<ul style="list-style-type: none"> <li>- This authority allows the government to sell, rent, or lend government equipment or materials to any person or entity</li> <li>- For use in independent research and development programs.</li> <li>- For use in demonstration to a friendly foreign government.</li> <li>- Not subject to procurement laws.</li> <li>- Cannot compete with private sector.</li> </ul>
Education Partnership Act (EPA)  <i>Refer to 10 U.S.C. 2194</i>	A formal agreement between a federal agency or agencies and an educational institution to transfer and/or enhance technology applications and provide technology assistance for all levels of education (pre-kindergarten and up).	<ul style="list-style-type: none"> <li>- The EPA provides authority to:               <ul style="list-style-type: none"> <li>- Loan equipment.</li> <li>- Declare as surplus and transfer (donate) equipment.</li> <li>- Make laboratory personnel available to teach or assist in developing courses and course materials.</li> <li>- Involve faculty and students in research.</li> <li>- Cooperate with institution so students can earn academic credits for laboratory research work.</li> <li>- Provide academic and career advice and assistance to students.</li> </ul> </li> </ul>

Technology Transfer Mechanisms		
Mechanisms	Description	Features/Characteristics
Grants  <i>Refer to 15 U.S.C. 3706 and 31 U.S.C. 6304</i>	An agreement between the government and a recipient, granting funding and/or property to the recipient to support or stimulate research.	<ul style="list-style-type: none"> <li>- DoD policy is to award research grants to educational institutions, nonprofit organizations, and state/local governments only.</li> <li>- Research grants to educational institutions must be competed.</li> <li>- Used extensively to support research.</li> <li>- Normally recipient obtains title to inventions, but Government retains Government Purpose License Rights (GPLR).</li> <li>- No significant involvement between the government and the recipient during performance.</li> <li>- No cost sharing is required.</li> </ul>
Other Transactions  <i>Refer to 10 U.S.C. 2371</i>	"Other transactions" are transactions other than contracts, grants, or cooperative agreements. Other transactions are flexible agreements used to accomplish various legal purposes. Other transactions for research are cost shared agreements that support basic, applied and advanced research. Limited to DoD use.	<ul style="list-style-type: none"> <li>- No duplication of research.</li> <li>- To the extent practicable, Government funds shall not exceed total amount provided by other parties (50/50 cost share).</li> <li>- Flexible agreements not subject to statutes and regulations that apply specifically to contracts, grants and cooperative agreements.</li> <li>- Used only when a standard contract, grant or cooperative agreement is not feasible.</li> <li>- Patent rights for inventions subject to negotiation.</li> <li>- ** Not required to comply with the Bayh-Dole patent law.</li> <li>- ** Government purpose license rights clause is negotiable.</li> <li>- ** "March-in-rights"</li> </ul>
Partnership Intermediaries  <i>Refer to 15 U.S.C. 3715; implemented by AF Instruction 61-301</i>	Contracts or Memorandum of Understanding with agencies of state or local governments or other entities chartered and/or funded by state and local government. Entities serve as intermediaries in performing services for the lab that increase the likelihood of success in the conduct of cooperative or joint activities for the lab with small business firms.	<ul style="list-style-type: none"> <li>- The ability to leverage local educational resources</li> <li>- Affiliated with state or local government.</li> <li>- Assists companies in utilizing federal technology</li> <li>- Provides assistance to ORTAs</li> <li>- Limited to small businesses, thus enhancing the small business's ability to participate in government projects with technology transfer.</li> <li>- Acts as technology broker</li> </ul>



Technology Transfer Mechanisms			Technology Transfer Mechanisms		
Mechanisms	Description	Features/Characteristics	Mechanisms	Description	Features/Characteristics
<b>Patents</b>  <i>Refer to 35 U.S.C. and 37 C.F.R.</i>	A patent is a grant issued by the U.S. Government giving an inventor the right to exclude all others from making, using, or selling the invention within the United States, its territories and possessions.	<ul style="list-style-type: none"> <li>- Covered by federal law and the U.S. Constitution</li> <li>- A patent is a contract between inventor and the government wherein the inventor discloses his discovery in exchange for a limited time duration monopoly.</li> <li>- A Provisional Patent (application) is used to temporarily protect the inventor's rights.</li> <li>- *Holds the filing date, must file within 1 year of the application date for Patent.</li> <li>- *Less formality.</li> <li>- *20-year term from the date of filing initial provisional patent application.</li> <li>- A patent grant has attributes of personal property and rights may be transferred or assigned.</li> <li>- U.S. patent only effective in the U.S.</li> <li>- Gives patent owner the right to prevent others from making, using, offering for sale, or importing the claimed invention within the U.S.</li> <li>- Foreign Filing:</li> <li>- *Must file within 12 months of U.S. application to preserve priority date.</li> <li>- *License for applications filed in foreign countries:</li> <li>- Within 6 months of U.S. filing. If not obtained, U.S. Patent barred; patent issuing on unlicensed application invalid.</li> <li>- Three types of patents:</li> <li>- *Utility Patent: 20-year term from the date of filing.</li> <li>- *Plant Patent: 20-year term from the date of filing.</li> <li>- *Design Patent: 14-year term.</li> <li>- Differ from trade secrets</li> <li>- *Disclosure in confidence by agreement.</li> <li>- *No protection from independent discovery or reverse engineering.</li> <li>- *Limited applicability.</li> </ul>			<ul style="list-style-type: none"> <li>- Preference for U.S. industry and small businesses.</li> <li>- Licensee must present plans to commercialize the invention.</li> <li>- Government retains a nonexclusive, royalty-free worldwide Government purpose license to the invention.</li> <li>- Government may use private inventions for Government purposes subject to payment of reasonable compensation.</li> <li>- Must follow existing procurement rules and instructions.</li> </ul>
<b>Patent Licensing</b>  <i>Refer to 35 U.S.C. 37 C.F.R., and AFI 51-303</i>	An agreement by the patent owner permitting a licensee (i.e. a third party) to practice (i.e. make, use or sell) the patented invention in return for some valuable consideration (i.e. royalty).	<b>From government to private sector:</b> <ul style="list-style-type: none"> <li>- A license may be granted on a pending patent application filed in the U.S. or foreign patent office or on an issued patent.</li> <li>- Can be exclusive or nonexclusive,</li> <li>- For a specific field use</li> <li>- For a special geographical area</li> <li>- U.S. or foreign usage</li> </ul>	<b>Use of Facilities and Loaned Equipment</b>  <i>Refer to 15 U.S.C. 5807</i>	Federal agencies, including the National Aeronautics and Space Administration and the Department of Defense, may allow non-federal entities to use their space-related facilities on a reimbursable basis if the Administrator, the Secretary of Defense, or the appropriate agency head determines that <ol style="list-style-type: none"> <li>1. The facilities will be used to support commercial space activities;</li> <li>2. Such use can be supported by existing or planned Federal resources;</li> <li>3. Such use is compatible with Federal activities;</li> <li>4. Equivalent commercial services are not available on reasonable terms; and</li> <li>5. Such use is consistent with public safety, national security, and international treaty obligations. In carrying out paragraph (5), each agency head shall consult with appropriate Federal officials.</li> </ol> Reimbursement Payment: <ol style="list-style-type: none"> <li>1. The reimbursement referred to in subsection (a) of this section may be an amount equal to</li> </ol>	User facilities are unique, complex, experimental scientific facilities, including equipment and expertise, at a governmental agency designated by the Government for use by the technical community, universities, industry, other laboratories, and other Government entities. <ul style="list-style-type: none"> <li>- Includes designated user facilities and other user resources.</li> <li>- Research may be conducted on a proprietary or nonproprietary basis.</li> <li>- For proprietary R&amp;D, full cost recovery is required. Patent rights generally go to inventor and proprietary data of the user can be protected.</li> <li>- For nonproprietary R&amp;D, title to inventions goes to the user but data generated is freely available.</li> <li>- If funded under another Government contractor or international agreement, users are subject to those intellectual property clauses.</li> </ul>

## Technology Transfer Mechanisms

Mechanisms	Description	Features/Characteristics
	<p>the direct costs (including salaries of United States civilian and contractor personnel) incurred by the United States as a result of the use of such facilities by the private sector. For the purposes of this paragraph, the term "direct costs" means the actual costs that can be unambiguously associated with such use, and would not be borne by the United States Government in the absence of such use.</p> <p>2. The amount of any payment received by the United States for use of facilities under this subsection shall be credited to the appropriation from which the cost of providing such facilities was paid.</p>	
<b>Unsolicited Proposals</b>  <i>Refer to FAR Subpart 15.6 and AFMCFARS 5315.6</i>	<p>Unsolicited proposals (UPs) are a valuable means for government agencies to obtain innovative or unique methods or approaches to accomplish their mission from sources outside the government. AFMC has found that UPs provide an important tool for accomplishing functions not always served by solicited proposals. AFMC welcomes UPs and appreciated the contribution they make toward ensuring the continuing superiority of the Air Force through technological leadership.</p>	<p>Submit UPs to focal point for activity listed in AFMC Pamphlet 64-101</p> <p>Trade secret, commercial, and ficanical information of submitter protected from release outside government</p> <p>Submissions must be:</p> <ul style="list-style-type: none"> <li>- Innovative and unique</li> <li>- Independently originated</li> <li>- Prepared without government supervision</li> <li>- Benefit agency mission</li> <li>- Not be an advance proposal for a known requirement</li> </ul> <p>AFMC Form 190 policy agreement for evaluation of UP must be signed by an officer of the company or the person submitting the proposal prior to evaluation</p> <p>If UP is favorably evaluated, a contract may be negotiated between the offeror and contracting officer for the interested AFMC activity</p>

